



built housing in newly developed subdivisions directly south of the Santo Niño church. The plan area also has a few large tracts of undeveloped land south of the Acequia Madre/Coyote Springs neighborhood and in the subarea locally referred to as West Tijeras. Small-scale commercial uses are sparsely spread along Historic Route 66.

Demographics

According to the US Census Bureau, the Carnuel/West Tijeras Plan area consists of approximately 1,474 residents that occupy approximately 646 homes. Since 2000, there was very little new construction in the plan area. Approximately 44% of the households in the plan area are residents who live alone and approximately 66% of the residents are family households. There is an average of 2.32 persons per household, which is higher than the East Mountain area (2.02 persons per household) as a whole, and is closer to the average number of persons per household within Bernalillo County which is 2.37 per household (East Mountain Area Plan 2006). The median age in the plan area is 42.5. 63.6% of the area's population is between the ages of 18-64 which is similar to the 60% for the East Mountain area as a whole. The median family income in the plan area is \$46,250, which is comparable to the entire East Mountain area; however the percentage of people in Carnuel below the poverty level is 12.3% which is significantly higher than the East Mountains where only 6.65% of the population is living below the poverty level. In fact, Carnuel is similar to the percentage of persons living in poverty in Bernalillo County as a whole which is 13.7%. The plan area has a significant Hispanic population, which is approximately 60% of the total population of the study area. (U.S. Census Bureau 2000, Carnuel CDP, estimates of existing homes in Census Tracts 3807 and 3806 which are primarily south of I-40)

II. NATURAL RESOURCES

The following section provides general information about the environment and natural resource conditions in the Carnuel/West Tijeras Plan area. It will assist in guiding future land use, transportation, open space, infrastructure improvements, and more importantly to develop strategies to enhance the environment. According to the East Mountain Area Plan, major issues were water availability and quality, fire danger, wildlife, open space, and clean air. The goals and recommendations presented later will address how to maintain the rural character, control erosion, mitigate drainage issues, and reduce pollution including light and noise pollution.

Soils

Soils include the alluvium of Tijeras Arroyo which contains beds comprised of sandstone, gneiss, limestone, and granite. Much of the areas soils derived from Tijeras Canyon, but areas of bedrock and resulting weathered gravel also exist throughout the plan area. These areas, also known as Orthids soils typically occur where bedrock materials are limestone, sandstone, or schist and have been exposed at the surface. These soils are typically thin to very thin, and contain large amounts of oversized materials. There is little to



no vegetation with this soil type. Where soils are recognizably present, they are generally classified as Tijeras sandy loam. Major and minor faults dissect the area, and resultant fracturing allows water to flow through the bedrock formations. These fractures, as well as overlying alluvium in the valleys, are the water source for the wells in the area. Soil limitations in the study area have caused groundwater contamination resulting from individual septic disposal systems. Most septic systems were placed before the promulgation of any wastewater ordinances by Bernalillo County. Most conventional septic systems were placed by carving into rock openings. The location of these systems does not allow water discharge into the soil and septic system discharge flows down fractures into water sources. The elimination of individual wells and septic tanks in favor of centralized infrastructure is a priority recommendation of the residents who participated in the planning process.

Elevation

The elevation in the plan area ranges from approximately 5,600 feet to approximately 6,600 feet. The planning area's lowest point is at the Carnuel Creek located within the Tijeras Watershed. This watershed begins at the top of the east slope of south Sandia Peak and has an elevation of 9,782 feet. Tijeras Canyon, located in the plan area, contributes to the drastic changes in elevation. For example, the change in elevation from the north edge of Echo Canyon to the bottom of the Carnuel Creek is approximately 1,000 feet.

Slopes, Drainage, and Surface Water

The study area ranges in slopes from about 5% to 20%. However, in specific portions of the study area there are locations with steep slopes greater than 20% such as the undeveloped areas in Coyote Springs and the area just north of Dead Man's Curve. The terracing of home sites is a dominant development feature in the study area. Even though the Carnuel area has developed by carving out home sites into the hillsides, there are very few roads that are paved. For the most part, the study area does not have significant drainage issues except in specific locations such as the creek crossing on Land Grant land in the Coyote Springs area as well as an additional spring crossings near the Santo Niño Church.

The single most important drainage feature of the study area is the Carnuel Creek, an intermittent stream, often referred to locally as the Tijeras Arroyo. The creek is the major drainage outlet for the study area and in the second half of the last century has seen degradation of the native riparian habitat. The major impact to the Carnuel Creek is the runoff from Highway 333 and I-40. The Carnuel Land Grant Board along with the Tijeras Safe Passage Coalition have both been active in working with the New Mexico Department of Transportation in mitigating highway drainage and the negative impacts associated with runoff flow. From the planning session (Jan. 7, 2006) it is clear that, many community members in the plan area would like to see the restoration of the Carnuel Creek.



Vegetation and Wildlife

The vegetation primarily consists of piñon, juniper, cactus, chamisa, and yucca sparsely located along the hillsides. Unlike other areas in the East Mountains, the native landscape along the hillsides has not been heavily impacted by human settlement. The riparian zone along the Carnuel Creek is dominated by cottonwood and willow. Over recent decades, the riparian area has been negatively impacted by invasive species such as Russian olives, salt cedars, and elm trees. Other invasive plants such as nap weed and Russian thistle have also negatively impacted the native landscape.

Within the plan area is a corridor for wildlife crossing from the Sandia Wilderness to the Manzano Mountains. The area also serves as a water source for wildlife. The New Mexico Game and Fish Department and the Tijeras Safe Passage Coalition have been working together to develop solutions to reduce the number of bear and deer killed by automobiles along I-40 and Highway 333. Some recommendations developed by these entities include the redesign of culverts and overpasses to allow wildlife to move without restrictive barriers such as I-40. These groups have also recommended barriers such as walls and fences along the Interstate as a way to funnel wildlife into designated safe-passage areas. (New Mexico Department of Transportation, Tijeras Safe Passage Feasibility Study, July 2005.)

Cultural Resources

There are several cultural resource areas that have archeological and cultural significance for residents of the study area. The Silva Site which is located along Highway 333 directly west of the Santo Niño Church contains pueblo ruins and is believed to be the original site of the San Miguel Village. Among the other identified cultural resources are the existing cemetery of the Carnue Land Grant, the Santo Niño Church, and Santo Niño Road along the church down to the Carnuel Creek. Santo Niño Road and the land directly east of the church are used for the Feast Days of San Miguel on September 29th and Santo Niño on May 3rd. The sites and designated areas are important for ceremonial dances such as those performed by Matachines.

Another major cultural resource of the plan area is the Acequia Madre de Carnuel, the historic irrigation ditch in Carnuel. Following the destruction of most of the acequia system by the construction of I-40 in



Silva Historical Site. Photo by James M. Aranda



the 1960s, residents have worked throughout the years to restore the acequia. Currently, the acequia in the Coyote Springs area is restored and in use. Restoration is being planned for the north side of I-40 in order to provide Carnue Land Grant with irrigated land along the Carnue Creek.

Environmental Issues and Concerns

Major environmental concerns identified in the planning process were water quality and wastewater issues. There are a number of residents in the plan area whose well water is not potable due to contamination of well sources. Many of the contaminated wells in the area result from septic waste that has made its way into the wells through the cracked rock formations. High amounts of naturally occurring arsenic and fluoride contribute to poor water quality. Another major problem is the ability to replace existing liquid waste disposal systems. The small lot sizes in the plan area limit the space in which septic tanks can be placed thus impeding the possibility of meeting current wastewater regulations. A major debate in the planning process examined the feasibility of allowing homes and businesses in the plan area to connect to the sewer line which runs from A. Montoya Elementary School in Tijeras through Carnuel connecting with the Albuquerque/Bernalillo County sewer system at Tramway Boulevard.

Over the years, the increased noise from highway traffic has become a nuisance. Since the plan area is located in a narrow canyon, the noise generated from high traffic volumes plagues the community with a constant “hum” of automobile movement. The community advocated mitigation of this noise pollution by the construction of a sound barrier on I-40. If planned in conjunction with improved wildlife crossings on the interstate, the barrier could serve to reduce noise and improve movement of wildlife through the canyon. Planners realize that a recommendation for such a buffer would have to be presented to the New Mexico Department of Transportation, who has jurisdiction over I-40.

III. LAND USE

The following section presents existing land use conditions and proposed land uses in the Carnuel/West Tijeras Plan area. The land use conditions of the study area are unique in comparison to other communities in the East Mountains due to the historic development patterns of the Carnuel community in which the majority of residential uses occurred before significant development regulations were created and applied to the planning area.

Residential Uses

The primary land use in the study area is residential. The majority of the housing is single-family dwelling units. The existing zoning is comprised of A-1, A-2, M-H, and R-1 zoning. Much of the western part of the plan area (West Tijeras) and some parcels directly